

Tales from the Dark Side of Technology Acceptance: The Dark Triad and the Technology Acceptance Model

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Abstract

With the dramatic shifts in the workforce that have emerged in the post–COVID-19 world, workers' emotions have often presented very negatively, causing people to overtly display the dark aspects of their personality while at work. At the same time, organizations have been forced to adopt new technologies to fill the gaps in their desired outcomes and cope with changes in market demand. The ensuing clash between negative emotions and technological implementation may lead to intense conflicts and adverse work outcomes. This study hypothesizes a direct relationship between dark personality traits (narcissism, Machiavellianism, and psychopathy) and technology acceptance. Using a multiple regression model with a sample of general workers from various industries (n=396), the study found that narcissism and psychopathy significantly impacted technology acceptance, while Machiavellianism did not. The findings offer valuable theoretical, practical, and managerial insights.

Keywords Technology acceptance · Dark triad · Narcissism · Dark personality traits

Introduction

The loss of 4.4 million American workers in the Great Resignation of 2021 paints a dark picture in terms of the challenges faced by managers in the post-pandemic world (Richter, 2021). Moreover, the lack of "new blood"—that is, new human capital—being pumped into these organizations has left the surviving employees in the organization burned out and often resentful of management and those workers who have left the workforce (Kapoor et al., 2021; Mejia et al., 2021; Slaughter et al., 2021). Beyond resentment, many of the remaining employees appear fearful about the future in regard to their jobs. Some scholarship supports the contention that this fear evokes dark personality traits such as

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Machiavellianism, narcissism, and psychopathy in response to the perceived stimuli; the resulting consequence is a workforce filled with people exhibiting latent dark traits of their personality (Coney, 2017; Harper et al., 2020). With the current workforce appearing less agreeable, lacking compassion, displaying low empathy, having low life satisfaction, and experiencing difficulty in seeing the good in themselves and others (Kaufman et al., 2019), and given a growing literature that suggests dark personality traits may actually encourage positive workplace outcomes (Grijalva et al., 2015; Higgs, 2009; Paunonen et al., 2006; Rosenthal & Pittinsky, 2006), future managers may be able to harness employee negativity and turn it into positive benefits for their organizations.

In the post–COVID-19 pandemic world, significant changes and challenges await the workforce, as business technology is increasingly being applied to fill gaps in employees' skills and talents. In a study by Davis (2021), nearly 44% of businesses reported that they were devising ways to advance their digital transformation processes, and 30% of the same organizations planned to develop additional training resources for remote workers to address the coming changes. Additionally, nearly 32% of firms planned to implement new technology to connect with employees soon (Davis, 2021). However, employees often struggle with accepting or adapting to the latest software or hardware when their organizations implement new technology, and their struggle can cost their employers millions of dollars (Venkatesh & Davis, 1996). We argue that managers could take advantage of the dark personality traits of their workforce to facilitate the transition to new technologies.

Even though the ultimate adoption of these technologies carries a high level of value for practitioners and scholars alike, we argue that exploring the potential acceptance of a technology is a necessary step in determining if dark personality traits play any part in the ultimate adoption of a technology. Considering that dark personality traits are known to affect individuals' behavior and decision-making, including their technology acceptance and adoption behaviors, understanding the potential influence of these traits on key components of technology acceptance can help researchers develop appropriate measures and interventions to promote positive outcomes even though there is potential for negative consequences of having high presentations of dark traits in the the workforce. Given the potential negative consequences of dark personality traits on technology acceptance and ultimate adoption, it is important for researchers to consider the impact of these traits at all phases of evaluation of a technology to provide insights into the underlying psychological mechanisms that may drive technology-related behaviors and inform the development of targeted interventions to promote positive outcomes. As such, we seek to address the following research question: Do negative personality traits impact perceptions associated with general technology acceptance for a potential new technology?

In the current literature associated with technology acceptance and dark personality traits, few empirical studies exist as yet exploring the direct link between dark traits and perceptions associated with technology acceptance. Notably, Harper et al. (2020) suggested that scholars explore the utility of these dark traits in various settings. We respond to that call with this paper. Additionally, this study addresses the gap in empirical studies covering how dark personality traits by exploring not specific groups or specific technologies.

Using the variables from Davis's (1989) technology acceptance model (TAM) and the Dark Triad (DT), we sampled general workers employed in a diverse set of industries, using a two-wave survey to evaluate the direct effects of the traditionally viewed negative personality traits found in the DT on perceptions associated with the perceived usefulness in general technology acceptance. In this manuscript, we first explore the literature associated with TAM to establish a theoretical framework for perceptions that lead to general technology acceptance. After defining this framework, we then review the literature related

to each element of the DT while detailing common behaviors of people who exhibit these traits. We logically connect each trait and the associated behaviors with established scholarship associated with similar behaviors and traits tested against variables in TAM. Based on this connection to the literature, we formulate testable hypotheses to be applied to perceptions of perceived usefulness in TAM and present our model. We then test our hypotheses using a multiple regression model and present our findings to answer our research question. Finally, using our results from our sample, we discuss our findings and present managerial implications and suggestions for implementing changes in practice along with further directions for research.

Literature Review

Technology Acceptance Model

The technology acceptance model (TAM) permeates the literature as the quintessential theory for studying how and why people accept technology in their work and personal lives. TAM theoretically explains what influences the decisions of potential users to accept newly presented technology and how well that technology will be adopted (Davis, 1989). As decades of influential scholarly applications of the model (Ma & Liu, 2004; Pavlou, 2003; Van der Heijden, 2004) demonstrate, TAM serves as a cornerstone of the literature seeking to understand how people perceive and interface with newer technology. This model has been applied to a wealth of industries, including healthcare (Beglaryan et al., 2017), entrepreneurship (Do et al., 2020), information technology (Khan et al., 2014), and retail (Gefen & Straub, 1997). Additionally, the literature abounds with explorations of TAM in conjunction with various demographic elements, such as age (Chen & Chan, 2011, 2014; Chung et al., 2010; Tarhini et al., 2014), gender (Gefen & Straub, 1997; Tarhini et al., 2014), and race (Porter & Donthu, 2006). Despite multiple attempts to expand or reframe the structure of this theoretical model (Fathema et al., 2014, 2015; Jaradat & Al-Mashaqba, 2014; Lowry et al., 2012; Scherer, 2005; Venkatesh & Davis, 2000), the core of technology acceptance remains perceived usefulness (PU), perceived ease of use (PEOU), and the relationships involving other external variables (e.g., perceived self-efficacy, motivation, and autonomy) found in Davis's (1989) original model.

For this study, we purposely chose to use the TAM compared to other models of technology acceptance/adoption because it most appropriately aids in answering our research question by exploring what influences the fundamental perceptions surrounding acceptance of a potential technology through evaluating direct effects on PU. Other models such as the unified theory of acceptance and use of technology (UTAUT: Venkatesh et al., 2003) were considered but we argue that the original TAM is a more suited model than UTAUT for several reasons. First, the TAM is simpler and more parsimonious than UTAUT. As Davis (1989) noted, the model is "elegant in its simplicity" (p. 320) because the model proposes that only two factors – PU and PEOU – are necessary to explain users' intention to use a technology. In contrast, UTAUT proposes four factors that are more complex and less parsimonious. Additionally, some scholars argue that the complexity of UTAUT makes it difficult to apply in practice (LeGris et al., 2003; Taylor & Todd, 1995). However, our major rationale for using TAM compared to UTAUT centers on the exploratory nature of our research question and the requirements to use UTAUT. Fundamentally, UTAUT requires a specific technology to be evaluated in a population to determine what are the antecedents and determinants of adoption of the technology (Venkatesh et al., 2003). Considering that our research question focuses on the initial perceptions associated with personality traits on general technology acceptance and not on specific technologies, UTAUT is inappropriate for use in modeling to aid in answering the research question. Furthermore, we argue that this study's use of the TAM is a more novel approach to ultimately understanding technology adoption because TAM is a precursor to UTAUT. In this study, we further argue that by understanding the potential antecedents of TAM, we address the needed first step to establish that dark personality traits do indeed have influence, which may then lead to future studies using more complex technology adoption models.

In Davis's (1989) original construction of the model, PU explained how an individual would determine the value of technology by considering how use of a particular system would alter their job performance and how the technology could help the individual accomplish their goals. Although critics of TAM postulate that PU has little overall importance for understanding the nuances of technology acceptance as compared to hedonic and other motivational forces (Benbasat & Barki, 2007; Chuttur, 2009; Saadé, 2007), broad support exists for the assertion that this factor explains a significant portion of the individual's acceptance of a technology and represents the focal variable in relation to the like-lihood of an individual accepting a technology (Ma & Liu, 2004; Pavlou, 2003; Svendsen et al., 2013; Van der Heijden, 2004).

PEOU, as explained in the initial Davis (1989) model, describes the adoption of a specific technology in terms of its relative ease of use and the individual's belief that the technology can be easily implemented in their environment. The literature concedes that even multimillion-dollar projects may fail to win acceptance among employees if those projects have poor user interfaces (Venkatesh & Davis, 1996). However, PEOU often embodies a set of inherent antecedents and determinants. In particular, elements of internal and external control, intrinsic motivation, and emotional stress (e.g., anxiety when approaching the technology) may negatively affect PEOU and impede technology acceptance (Venkatesh, 2000). If a technology is perceived as easy to use, individuals are more likely to have a positive attitude towards it and to ultimately adopt it. In contrast, if a technology is seen as difficult to use, individuals may have a negative attitude towards it and be less likely to adopt it.

Throughout the literature supporting TAM, scholars universally present the idea that the PEOU of technology directly leads to an individual's assessment of the PU of that technology. We expect to find the same relationship in our study, as expressed in the following hypothesis:

Hypothesis 1: High PEOU for a potential technology will positively impact PU for the same technology.

Beyond the two primary elements of TAM (PU and PEOU), a third element often explains either the direct or indirect effects to or from PU (Davis, 1989). As evidenced by the various meta-analyses cataloging relationships associated with PU (King & He, 2006; Schepers & Wetzels, 2007; Yousafzai et al., 2007a, b), the literature teems with examples of elements that explain, at least partially, why people do or do not accept a technology.

The quality of leadership for one who is determining if a technology will be accepted presents as a factor in the literature (Hwang et al., 2016, 2020, 2021; Schepers et al., 2005). For example, the stream of research by Hwang et al. (2016, 2020, 2021) strongly supports that the impact of Leader-Member exchange (LMX) influences technology acceptance conceptually and empirically. The LMX construct measures and captures the quality of

the employee's relationship with their direct supervisor. According to studies examining the relationship between LMX and change, those who have better relationships with their supervisors have the strongest perceptions of the change climate (Tierney, 1999). Also, LMX has been found to influence the relationship between supervisors' influence tactics and the effectiveness of those tactics in addressing change resistance (Furst & Cable, 2008). Generally, higher quality exchanges are less resistant to change (e.g., Van Dam et al., 2008). In the Hwang et al.'s manuscripts (2020, 2021), the authors found that LMX functioned as a moderator to positively impact technology acceptance. However, leadership also impacts technology acceptance in direct effects. For example, Schepers et al. (2005) evaluated transformative leadership's impact on the perceived usefulness of a technology and found a positive relationship. However, the authors did note that the dimension of intellectual stimulation fully accounted for how the transformational leadership influenced the acceptance. Even though the component of intellectual stimulation was the primary explanatory factor in their modeling, we argue that intellectual stimulation is an important aspect of LMX (Keskes et al., 2018; Zacher et al., 2014) that would be captured by exploring LMX generally. Owing to the above scholarship, we expect to also observe LMX as a positive component in our modeling for this study. Through the use of the variable of LMX, we will attempt to extract part of the variance associated with technology acceptance as a control.

The original TAM study looked at individuals' use of technology and their behavior but did not explore how their personality affected any part of technology acceptance (Davis, 1989). Later scholars have agreed that PU involves an emotional state that impacts technology acceptance (Benbasat & Barki, 2007; Chuttur, 2009; Devaraj et al., 2008; Saadé, 2007; Svendsen et al., 2013). Whereas there is broad support for positive personality traits affecting technology acceptance (Devaraj et al., 2008; Rosen & Kluemper, 2008; Svendsen et al., 2013), to date few studies have delved into how adverse personality traits influence such acceptance. In our study, we explore negative personality traits to answer our research question and help understand how these traits impact perceptions as precursors to the TAM. In the following subsections, we describe the personality traits associated with the DT in the extant literature, and use established connections for similar personality traits to understand better how the DT and its elements connect to TAM.

The Dark Triad

When some elements of the DT were initially presented in the psychology literature, this subject matter was considered highly controversial because scholars in academic circles did not openly discuss the darker sides of personality outside of the pathological realm (McHoskey et al., 1998). However, the scholarly contributions of Paulhus and Williams (2002) presented significant evidence of behavioral, personality, and cognitive differences between the traits and inspired a growing stream of literature dealing with these topics (Jakobwitz & Egan, 2006; Kaufman et al., 2019; O'Boyle et al., 2012).

The Dark Triad is a nonpathological personality construct composed of three elements: narcissism, Machiavellianism, and psychopathy (Paulhus & Williams, 2002). In their study, Paulhus and Williams (2002) suggested that even though an individual may not directly have nefarious intentions, some aspects of those traits are always present in one's personality. When people exhibit low levels of one or more DT elements, they tend to be indistinguishable from others in the general public (Kaufman et al., 2019; Paulhus & Williams, 2002). Conversely, people scoring high on these traits are often more prone to commit

crimes, create social disturbances, and cause difficulties for an organization; moreover, the severity of these traits is compounded when the individual is in a leadership position (O'Boyle et al., 2012). Additionally, higher scorers tend to be less agreeable, lack compassion, display lower levels of empathy, find lower satisfaction with their overall lives, and experience difficulty seeing the good in themselves and others (Kaufman et al., 2019).

In the following subsections, we review the literature for each element in the DT individually to explain the nuances of the traits and rationalize their connections to TAM.

Psychopathy

Contemporary culture has often depicted psychopathy as a dominant and defining personality trait that drives the individual to interact with the world in an emotionless and selfserving way, often typified by serial killers (Hannibal Lecter: DeLisi et al., 2010; Dexter Morgan: DePaulo, 2010). In fact, mental health practitioners do not have a clinical diagnosis that matches these popular views (American Psychiatric Association, 2013). Instead, the business and psychology literature characterizes psychopathy into two overall constructs (primary and secondary) based on associated traits and behaviors (Ali et al., 2009; Newman et al., 2005).

Individuals with primary psychopathy often exhibit callousness, have lower emotional responses to stimuli, are manipulative, and use their superficial charm to circumvent social situations (Newman et al., 2005). Additionally, such individuals may manifest defensive dysfunctions, such as having less fear, exhibiting cunning, and lacking empathy or remorse without being overtly harmful to themselves, others, or the organizations for which they work (Ali et al., 2009; Newman et al., 2005). Despite their generally negligent actions, the literature contends that such individuals have multiple adverse effects on their organizations, themselves, and others (Carre et al., 2018; Neo et al., 2018; Reio & Sanders-Reio, 2006). In summary, primary psychopathy is an aspect of one's overall personality that is associated with the display of some degree of antisocial behavior, impulsivity, callousness, and lack of empathy for others (Frick & White, 2008). In contrast, secondary psychopathy is linked to impulsivity, highly neurotic and hostile behavior, and direct nefarious acts (Benning et al., 2005). When exploring the general topic of psychopathy, scholars often have not distinguished between the primary and secondary variants in establishing variables for studies (Newman et al., 2005). The vast majority of the business literature uses primary psychopathy in evaluating the overall trait exhibited in the workplace (Ali et al., 2009; Benning et al., 2005; Newman et al., 2005).

Many subtraits associated with psychopathy have been connected to TAM in the established personality literature. Most notably, the subtrait of impulsivity and coercion has been linked through self-regulation to technology acceptance (Bagozzi, 2007; Soror et al., 2015; Tseng & Kuo, 2010). Bagozzi (2007) has argued that the traditional relationships in the TAM literature derive from the expectation of self-regulation of cognitive processing (including freedom from impulsivity or coercion). Considering that psychopathy as a general construct includes elements of both impulsive and intended coercion, we logically argue that the antecedent relationship of a variable that contains these elements would not result in the same positive relationship that a trait that does not include these elements would. Rather, we argue that an individual who has high primary psychopathy scores would be focused rather on impulsively attempting to circumvent attempts to accept a technology through the use of coercion or other tactics to maintain a self-perceived control of the circumstance through self-regulation where a technology required efforts to adopt. Therefore, we expect a negative relationship with TAM elements and propose the following hypotheses:

Hypothesis 2: Higher levels of self-reported psychopathy will negatively affect perceptions of PU as a precursor to the acceptance of a new technology.

Machiavellianism

When one considers Machiavellianism, the image of a puppeteer deviously manipulating human puppets from the shadows readily comes to mind. Machiavellianism comprises efforts to manipulate and exploit others via an amoral, emotionless, callous approach to social interactions that ultimately serve oneself (Jakobwitz & Egan, 2006). Individuals who demonstrate this trait possess superior intelligence at high levels, as evidenced by their adeptness at interpersonal manipulation, facilitated by their high emotional intelligence, and their ability to influence other people in social situations (Kowalski et al., 2018). Moreover, Machiavellianism is highly correlated with the Big Five's agreeableness scale (Jakobwitz & Egan, 2006); that is, Machiavellianis are able to easily manipulate people high in agreeableness, who tend to be more liked and prone to assume leadership roles (Kichuk & Wiesner, 1997). In the workplace, the literature supports an association between Machiavellianism and counterproductive behaviors such as deceit, coercion, cheating, and abusive supervision (Mitchell et al., 2018; Shu et al., 2011).

Machiavellianism connects to TAM in multiple ways. First, we argue that Machiavellianism can be theoretical substitute for components of the Big Five Inventory (BFI), and the BFI has been extensively associated with TAM (Devaraj et al., 2008; Rosen & Kluemper, 2008; Svendsen et al., 2013.). When comparing the traits of the BFI, Hodson et al. (2009) found that Openness linked Machiavellianism via Social Dominance orientation (SDO: Pratto et al., 1994). Owing to the construct of SDO directly connects to prejudice views of an experience (Carnahan & McFarland, 2007) and because Machiavellians often engage in deceit, coercion, and workplace cheating behaviors (Mitchell et al., 2018; Shu et al., 2011), they are able to avoid new technology by manipulating others to adopt and use the latest technology, while not using the technology themselves. Therefore, we expect Machiavellianism to have a negative relationship with TAM elements and propose the following hypotheses:

Hypothesis 3: Higher levels of Machiavellianism will negatively affect perceptions of PU as a precursor to the acceptance of a new technology.

Although we have proposed arguments for the connection of TAM with direct effects for psychopathy and Machiavellianism individually, some scholars contend that psychopathy and Machiavellianism are roughly the same construct. Thus, they assert the two should be evaluated as a single variable when studied (Ali et al., 2009; Carter et al., 2015; Miller et al., 2017; Rogoza & Cieciuch, 2020). Therefore, we must discuss how the two constructs potentially interact.

Psychopathy and Machiavellianism are, indeed, closely correlated when examined empirically (Carter et al., 2015; Glenn & Sellbom, 2015; Miller et al., 2017; Vize et al., 2018). Both traits encompass similar affective qualities (i.e., emotional detachment, a lack of remorse) and similar behavioral characteristics (i.e., exploitation/manipulation, an inclination toward malicious and antisocial behaviors). Nevertheless, each trait can be

differentiated at specific levels—for example, in terms of how psychopathic and Machiavellian individuals differentially manipulate others to achieve their goals (Hare & Neumann, 2008; Levenson et al., 1995; Rauthmann, 2012; Rauthmann & Will, 2011). Both Machiavellianism and psychopathy are associated with similar cognitive characteristics via individuals being self-centered and having a negative view of self and others; their selfserving nature and agentic orientations are also aligned (Hare & Neumann, 2008; Levenson et al., 1995; Neal & Sellbom, 2012; Patrick et al., 2009; Rauthmann, 2012; Rauthmann & Will, 2011). However, they ultimately differ in the elements used to control their impulses (Glenn & Sellbom, 2015; Jones & Paulhus, 2011; Rogoza & Cieciuch, 2020). Considering that impulse control likely impacts technology acceptance, we argue that combining Machiavellianism and psychopathy would likely result in skewed findings. For these reasons, we model and test each construct separately in this study.

Narcissism

Narcissism has appeared in popular culture via fictional exemplars such as Miranda Priestly in the film The Devil Wears Prada (Thawait, 2021), the group of teenagers known as the "Plastics" in Mean Girls (Karlyn, 2021), and Charles Foster Kane in Citizen Kane (Germain, 2018). Unlike psychopathy, narcissism is associated with a clinical diagnosis, and extreme displays of this personality trait require management via medication and other psychiatric interventions (American Psychiatric Association, 2013). Clinical narcissistic personality disorder (NPD) is described as an augmented sense of self-importance combined with entitlement, exaggeration of one's talents and accomplishments, preoccupation with cognitive perceptions of self-involving acquisition of power, feelings of superiority, monopolization of conversations, extreme arrogance, unwillingness to consider other emotions, and pathological show-up-manship (American Psychiatric Association, 2013; Ronningstam, 2011). However, clinical presentation of NPD is relatively rare, accounting for approximately 6% of 1% of the total clinical diagnosed psychiatric cases appearing in the general population (Stinson et al., 2008). In the business literature, narcissism presents much differently than the clinical diagnosis, as the vast majority of the literature explores nonclinical cases that do not require medical intervention for management (Jakobwitz & Egan, 2006; Kaufman et al., 2019; Miller et al., 2017, 2021; O'Boyle et al., 2012; Paulhus & Williams, 2002).

The trait of narcissism manifests as self-absorption, entitlement, dominance, grandiosity, and a feeling of overall superiority (Corry et al., 2008). Even though narcissism significantly correlates with psychopathy (Vernon et al., 2008), it also relates to some other personality traits: extraversion, openness to experience, and a lack of agreeableness (Paulhus & Williams, 2002; Vernon, 2008). When one evaluates the overall effect of narcissism as a personality trait via openness to experience, a logical connection to acceptance of new technology can be made, as openness to experience exemplifies an objective attempt at viewing a new technology. Support for this claim comes from Svendsen et al.'s (2013) study, which found that an individual's openness is connected to PU of a new technology.

Narcissistic individuals tend to prioritize their personal goals and desires over others (Carpenter, 2012; Rose & Campbell, 2014), which can lead to a distorted perception of the usefulness of a technology (Buffardi & Campbell, 2008; Twenge & Campbell, 2009). As such, they tend to focus on how a technology can benefit them personally rather than considering how it can be useful to society as a whole (Amichai-Hamburger & Vinitzky, 2010). As a result, they may be more likely to perceive the usefulness of technologies that serve

their own interests rather than those that benefit society. Furthermore, research has shown that narcissistic individuals tend to be more attracted to technologies that allow them to present themselves in a positive light to others, such as social media platforms (Buffardi & Campbell, 2008). They may also be more likely perceive the usefulness of a technology for self-promotion and self-enhancement rather than for genuine social connection or communication (Amichai-Hamburger & Vinitzky, 2010). Additionally, narcissistic individuals tend to seek out activities that provide them with a sense of control and power (Campbell et al., 2004). Therefore, they may be more attracted to technologies that allow them to exercise control and power over others, such as online gaming or social media (Buffardi & Campbell, 2008). Moreover, narcissistic individuals tend to be more interested in immediate gratification and rewards (Miller et al., 2017). Therefore, they may be more likely to adopt technologies that offer instant gratification, such as mobile gaming or social media, rather than those that require delayed gratification, such as online learning platforms. Finally, research has shown that narcissistic individuals tend to be more risk-tolerant and less risk-averse than non-narcissistic individuals (Campbell et al., 2004). This may make them more willing to adopt new technologies, even if they are not fully tested or proven, as they may view the adoption of such technologies as a way to gain social recognition or status.

The research suggests that individuals with higher levels of narcissism may view technology as a means of achieving personal gain and validation, including admiration from others. While this may be particularly relevant for technologies such as social media, which offer opportunities for individuals to showcase their achievements and garner praise and attention from others, it is possible that this perspective could be applied to a wide range of technologies.

Research by Cisek et al. (2014) found that individuals with higher levels of narcissism tended to view their possessions as extensions of themselves, and to use them to enhance their self-image and reputation. They argued that this perspective could be applied to a wide range of possessions, including technologies such as smartphones and laptops. Similarly, other research has suggested that individuals with higher levels of narcissism may be more likely to adopt technologies that offer immediate gratification and rewards, as well as those that offer opportunities for self-promotion and self-enhancement (Vogel et al., 2015). This suggests that individuals with higher levels of narcissism may be more likely to view a wide range of technologies may be more relevant to individuals with higher levels of narcissism. While it is possible that some technologies may be more relevant to individuals with higher levels of narcissism, it is likely that this perspective could be applied to a wide range of technologies. Therefore, we propose the following hypotheses:

Hypothesis 4: Higher levels of narcissism will positively affect perceptions of PU as a precursor to the acceptance of a new technology.

Method

Hypothesized Model

To aid in answering the research question "Do negative personality traits impact perceptions associated with general technology acceptance for a potential new technology?", we will explore the relationships in our proposed model, shown in Fig. 1.



Fig. 1 Proposed model

Our model consists of two overarching areas: (1) the DT segmented into three factors (psychopathy, Machiavellianism and narcissism) and (2) perceived usefulness (PU) and perceived ease of use (PEOU) as TAM's core elements. Hypotheses 2–4 lead to PU in the extended technology acceptance model (TAM2), and not to PEOU as in the original TAM. When developing TAM2, Venkatesh and Davis (1996, 2000) also evaluated the antecedent relationships for PU and PEOU in separate papers to achieve a similar focus. In a similar vein, we purposely chose not to explore the relationship of dark personality traits with PEOU directly to clearly define the antecedent roles of dark personality elements on PU. However, the potential interactions of our proposed antecedents of PU (i.e., PEOU, narcissism, psychopathy, and Machiavellianism) have the potential to explain variance of one's ultimate PU for a new technology. Therefore, we argue that our model explains at a macro level the traditional direct effects found in the relationship between PEOU and PU, thereby explaining the perceptions of potential usefulness of a technology in relationship of DT elements in general technology acceptance.

Participants and Procedures

We used the following inclusion criterion for our sample: (a) currently employed in the United States, (b) at least 18 years old, (c) have at least 5 years of work experience, and (d) signed up to participate in a Qualtrics Panel. After receiving institutional review board (IRB) approval, we began data collection attempts. Given that sampling using Internet vendor-based sources often results in more consistent sample composition, respondent integrity, data quality, data structures, and substantive results when compared to non-Internet vendor-based sample collection (Smith et al., 2016), we chose to gather data via the third-party company Qualtrics. From October 24 to November 24, 2021, we surveyed our participants two times (1-week gap minimum between each

sampling), with each scale/questionnaire being answered by the participants once during the data collection wave. Data on variables other than those included in our model were also collected. The average time of the first sampling was 22.57 min, while the second time was 31.65 min. The combined and averaged total time of participants' survey responses was 54.08 min. Once participants completed the measures, they were debriefed and thanked for their participation.

Our raw sample consisted of 396 independent responses from people (231 male, 164 female, one nonbinary) ages 30-87 (M=59.01, SD=10.722) with varying education levels and between 5 and 70 years of work experience (M=35.60, SD=11.89) who were currently employed in the United States. After data screening (detailed later in this paper), our sample for analysis consisted of people (231 male, 164 female, one non-binary) ages 30-81 (M=59.01, SD=10.722) with varying education levels and between 5 and 70 years of work experience (M=35.600 SD=11.8900) who were currently employed in the United States. The race/ethnicity of the sample was highly skewed toward homogeneity, with 91.162% of the participants self-identifying as White/Caucasian. See Table 1 for more details.

Variables

Perceived Usefulness (PU) Using PU components in the TAM (Davis, 1989), we evaluated participants' perception of their PU for new technology (6 items on a 7-point Likert-type scale unified as a single variable). Multiple meta-analyses in the literature have provided support for the validity of this measure as a representation of a participant's self-reported perception of the PU of new technology (Chuttur, 2009; King & He, 2006; Marangunić & Granić, 2015).

Perceived Ease of Use (PEUO) Using the components for PEUO in the TAM (Davis, 1989), we evaluated participants' perception of the PEUO of new technology (6 items on a 7-point Likert-type scale unified as a single variable). Again, we drew from meta-analyses in the literature (Chuttur, 2009; King & He, 2006; Marangunić & Granić, 2015) for external support that this measure represents a participant's self-reported perception of the PEOU of new technology.

Psychopathy (PYS) Using the components for PYS in the Dark Triad (Dirty Dozen: Jonason & Webster, 2010), we evaluated participants' perception of PYS (4 items on a 7-point Likert-type scale unified as a single variable).

Machiavellianism (MACH) Using the components for MACH in the Dark Triad (Dirty Dozen: Jonason & Webster, 2010), we evaluated participants' perception of MACH (4 items on a 7-point Likert-type scale unified as a single variable).

Narcissism (NARC) Using the components for NARC in the Dark Triad (Dirty Dozen; Jonason & Webster, 2010), we evaluated participants' perception of NARC (4 items on a 7-point Likert-type scale unified as a single variable).

Multiple scholars have supported the validity of the DT measures (NARC, PSY, and MACH) as a representation of a participant's self-reported levels for each construct (Carter et al., 2015; Dinić et al., 2018; Jonason & Webster, 2010).

Age		n	%
30–35		14	3.534
36–40		16	4.040
41–45		31	7.828
46–50		22	5.556
51–55		34	8.871
56–60		71	17.929
61–65		81	20.455
66–70		93	23.485
71–75		23	5.808
76–80		9	2.273
81		2	0.505
Education		п	%
High School		27	6.818
Vocational Training		9	2.273
Some College		43	10.859
Associates Degree		37	9.343
Bachelor's Degree		169	42.677
Master's Degree		82	20.707
Doctorate Degree		27	6.818
Other		2	0.505
Race		n	%
Asian		18	4.545
Black or African American		5	1.263
Hispanic/Latino		2	0.505
White or Caucasian		361	91.162
Multiracial or other		6	1.515
Prefer not to answer		4	1.010
Industry with SIC code		n	%
Agriculture, Forestry and Fishing	01–09	5	1.263
Mining	10–14	4	1.010
Construction	15–17	18	4.545
Manufacturing	20–39	55	13.889
Transportation and Public Utilities	40–49	72	18.182
Wholesale Trade	50–51	15	3.788
Retail Trade	53–59	41	10.354
Finance, Insurance, Real Estate	60–67	37	9.343
Services	70–89	100	25.253
Public Administration	91–99	49	12.374

Control Variables To eliminate alternative explanations for the hypothesized relationships in this study, we followed Bernerth and Aguinis (2016) and included control variables. Initially, we controlled for our participants' job satisfaction to account for the impact of varying levels of job satisfaction on technology acceptance (Benbasat & Barki, 2007; Davis, 1989; Venkatesh et al., 2003, 2007). We used Brayfield and Rothe's (1951) measure for job satisfaction (JSat)(six items on a 5- point Likert-type scale unified as a single variable.)

 Table 1 Descriptive statistics of the sample

Considering that change uncertainty is a foundational a factor in technology acceptance (Furst & Cable, 2008; Van Dam et al., 2008), we next controlled for the change uncertainty (CU). This variable also addresses the need to control for the likelihood that our participants were experiencing perceptions of stress from uncertainty as an effect of living and working through the Covid-19 Pandemic. Using the questions associated with the factor for change uncertainty in Rafferty and Griffin's (2006) multi-item measure for job-based change perceptions, we evaluated our participants' self-reported perceptions of uncertainty surrounding aspects of their job (four items on a 5- point Likert-type scale unified as a single variable.) Owing to the literature supporting that employees who have high turnover intention likely have lower technology acceptance (e.g., Shahreki et al., 2019; Thatcher et al., 2002; Tomer et al., 2022), we used O'Driscoll and Beehr's (1994) measure for turnover intentions (TOI)(three items on a 5- point Likert-type scale unified as a single variable.) To account for the variance that could be explained by leader-member exchange (LMX) that the literature supports impacts technology acceptance (Hwang et al., 2016, 2020, 2021; Schepers et al., 2005), we used Graen and Ulh-Bien's (1995) measure of LMX (seven items on a 5- point Likert-type scale unified as a single variable.) Additionally, we controlled for age, gender, and organizational tenure because these demographic elements are the most commonly used demographic control variables in the motivation and performance literature (Bernerth & Aguinis, 2016).

Data Screening

Missing Data In our sampling of the 396 participants, we captured data associated with the items in variables during two waves of sampling. During the first time of sampling, we captured data associated with demographics (age, gender, race, organization tenure, and education level). Additionally, we gathered scale items associated with our focal variables for the dark triad (psychopathy, Machiavellianism, and narcissism). Also in the first sampling, we sampled responses associated with our intended controls (change uncertainty and leader-member exchange). The missing values with the first sampling were minimal. Demographic missing values included zero cases for gender, race, education level, and organization tenure. Only one case contained missing values for age (0.300%). Our focal dark triad variable items each had one case missing (0.300%). The control scale items for change uncertainty had zero missing cases and the leader-member exchange items had one missing case for each of the scale items (0.300). In the first sampling, the missing case was the same participant among the items.

The second sampling contained no demographics measures, the focal technology acceptance items (perceived ease of use and perceived usefulness), and items for two additional control measures (turnover intentions and job satisfaction). Our focal technology acceptance measures each had 146 cases with missing values accounting for 36.900% of missingness. For our control measures, we found that all items for turnover intentions and five of the six items for the job satisfaction measures contained 146 missing values (36.900%). The sixth item for job satisfaction had 147 missing cases (37.100%). In a similar vein as the first sampling, all cases containing missing values overlapped in the second sampling.

To determine if the items were Missing Completely at Random (MCAR), we analyzed the data with SPSS via Little's MCAR test $X^2(150) = 157.323$, p = 0.325. Considering that we found a non-significant p-value, we determined that the values were

missing at random. Accordingly, we used the expectation maximization (EM) method to impute the missing values for the 147 cases of missing values (Shortreed & Forbes, 2010). For the variables that contained 36.900% and 37.100% of missing values, there was less than 0.19 value shift of difference between the means of items when compared to cases with non-imputed values. Therefore, we determined that our imputation method appropriately imputed values for further analysis efforts.

Data Screening

We screened the data for our focal variables (PU, PEOU, MACH, PSYC, and NARC) and our control variables (CU, JobSat, LMX, and TOI) for both outliers and normality. As just noted, our initial sample size was n = 396. None of the variables exhibited high skewness or kurtosis exceeding the cutoffs of ± 2.0 for skewness and ± 7.0 for kurtosis (Hair et al., 2010). The skewness values for these variables ranged from -0.733 to 1.372, and the kurtosis values ranged from -0.815 to 1.569. Univariate outliers were examined using z-scores, based on Raykov and Marcoulides's (2008) recommended cutoff of ± 3.0 for extreme cases. We identified six cases for PSYC, seven cases for MACH, three cases for NARC, and six cases JSat. The largest Z-score were -3.109 (JSat) and 3.649 (MACH). When we removed the outliers, the Q-Q plot appeared largely unchanged. In addition, multivariate outliers were examined using Mahalanobis distances, with a cutoff of 26.13 based on 9 df at p < 0.001. Multiple cases exceeded this value—namely, the same extreme cases identified earlier. We reviewed each question in the outlier cases and determined that the answers were consistent and free of potential manipulation. Accordingly, we did not remove any additional cases, and the resulting sample size was n = 396.

Analysis and Results

Measurement Model Analysis

Utilizing Wasko and Faraj's (2005) guideline of 0.700 as a cutoff value for composite reliability (CR), we tested the reliability of our constructs. Additionally, we assessed Cronbach's alpha scores using a cutoff value of 0.70 to determine if the measure was appropriate for analysis. It All measures met these criteria; thus, we determined that the individual constructs adequately represented the respective variables. We also assessed the acceptability of convergent validity using a minimum score of 0.50 for average variance extracted (AVE). All measures were above this threshold. For more details, see Table 2. This table also shows the factor loadings for the individual items that loaded into the constructs. We tested discriminant validity with the Fornell–Larcker criterion to determine if the square root of AVE for each construct was greater than the interconstruct correlation for the other constructs to be tested. Further, we confirmed discriminant validity with the heterotrait–monotrait ratio of correlations (Henseler et al., 2015). Considering that all values in question were less than Henseler et al.'s threshold (0.90), we determined that discriminant validity was established (see Table 3 for more details).

$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	1. TAM 4.497 1.146 (.964) 2. PU 4.468 1.351 913** (.978) 3. PEOU 4.525 1.194 .887** .622** (.968) 4. Mach 2.011 1.174 .093 .098 .066 5. PYS 2.019 1.159 .107* .101* .000 6. NARC 2.019 1.413 .158** .181** .100* 7. Change uncertainty 3.008 1.454 .022 .119* 092 8. LMX 3.680 0.928 .138** .059 .198** 9. Job satisfaction 3.584 0.81 .216** .143** .252** 10. Turnover intention 2.277 1.245 .011 .040 025	3 4	5	9	7	8	6	10
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		025 .331**	.333**	.031	.492**	481**	613**	(186.)

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Direct Effects

Using the G*Power statistical tool (Faul et al., 2007, 2009), we evaluated our sample and potential effect size for this study. With a proposed 0.80 as a convention for 'general use' when performing this power analysis (Cohen, 1988, 1992), we determined that a modest sample size of n = 118 or more with 80% power will be of statistical significance given the number of proposed variables in our study. Considering that our sample size was n = 396, we determined that our sample size was adequate for our intended analysis method.

Analysis

Regression Analysis A multiple regression was conducted with SPSS to examine the relationship between the elements of the dark triad, PEOU, and PU. The predictors together explained a significant proportion of variance in PU (F(11, 395)=32.025, p < 0.000; R²=0.478). Three of the predictors were statistically significant, PEUO (β =0.572, p < 0.000), PSYC (β =-0.198, p < 0.000) and NARC (β =0.145, p < 0.002). Thus, MACH (β =0.031, p=0.605) was not significant a predictor in the model. Additionally, we assessed the controls in our modeling and found both significant and non-significant relationships. Age (β =-0.140, p=0.002), OrgTen (β =0.136, p < 0.000), and CU (β =0.149, p=0.002) were significant contractors to the model. Conversely, Gender (β =-0.005,

Fornell-Larc	ker criterio	n							
	1	2	3	4	5	6	7	8	9
1 PU	0.949								
2 PEOU	0.626	0.930							
3 PYSC	-0.163	-0.126	0.775						
4 Mach	0.114	0.070	0.603	0.862					
5 NARC	0.188	0.103	0.384	0.578	0.871				
6 JobSat	0.163	0.274	-0.301	-0.103	0.079	0.876			
7 Change	0.164	-0.086	0.285	0.338	0.231	-0.409	0.938		
8 LMX	0.090	0.209	-0.240	-0.139	0.064	0.638	-0.357	0.836	
9 TOI	0.054	0.009	0.312	0.313	0.035	-0.488	0.410	-0.402	0.990
Heterotrait-n	nonotrait ra	tio							
	1	2	3	4	5	6	7	8	9
1 PU									
2 PEOU	0.638								
3 Pysc	0.114	0.096							
4 Mach	0.104	0.069	0.827						
5 NARC	0.194	0.104	0.491	0.632					
6 JobSat	0.153	0.267	0.298	0.142	0.125				
7 Change	0.162	0.097	0.354	0.381	0.255	0.449			
8 LMX	0.062	0.204	0.277	0.206	0.115	0.71	0.407		
9 TOI	0.053	0.035	0.332	0.33	0.097	0.549	0.433	0.441	

Table 3 Fornell-Larcker criterion and Heterotrait-Monotrait ratio

Diagonal elements are the square root of the AVE for the construct in the Fornell–Larcker criterion The bolder values indicate the square root of AVE

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p=0.853), JSat ($\beta=0.051$, p=0.382), LMX ($\beta=-0.073$, p=0.161), and TOI ($\beta=0.010$, p=0.895) were non-significant.

We supplemented the multiple regression results using relative weight analysis (Johnson, 2000). Of the total 47.8% of the variance explained by the model, 69.2% was explained by PEOU. The rest of the dimensions present substantially less variance, with PSYC explaining 4.2%, MACH explaining 1.6%, and NARC explaining 4.6% of the variance. The controls relative weight explain variance in the following way: Age (8.9%), Gender (0.3%), OrgTen (3.3%), JStat (2.6%), CU (3.6%), LMX (0.9%), and TOI (0.8%).

Considering that PEOU carried a substantial amount of the variance in our modeling and the construct of technology acceptance includes both PEOU and PU, we evaluated collapsing PEOU and PU into a single construct (TAM) as the dependent variable for an alternative model to assess relationships of variance. The predictors together explained a significant proportion of variance in TAM (F(10, 395)=10.490, p < 0.000; R²=0.221). Two of the predictors were statistically significant: PSYC (β =-0.288, p < 0.000) and NARC (β =0.118, p=0.011). Thus, MACH (β =0.115, p=0.107) was not significant a predictor in the model. Additionally, we assessed the controls in our modeling and found both significant and non-significant relationships. Age (β =-0.035, p < 0.000), Gender (β =-0.269, p=0.015), OrgTen (β =0.011, p=0.022), and JSat (β =0.351, p=0.001) were significant contributors to the model. Conversely, CU (β =0.029, p=0.524), LMX (β =0.007, p=0.928), and TOI (β =0.096, p=0.111) were non-significant.

We supplemented the multiple regression results using relative weight analysis. Of the total 22.1% of the variance explained by the model, PSYC explaining 12.9%, MACH explaining 5.8%, and NARC explaining 9.2% of the variance. The controls relative weight explain variance in the following way: Age (39.1%), Gender (3.2%), OrgTen (3.7%), JStat (15.8%), CU (1.7%), LMX (4.7%), and TOI (3.9%).

Please see Table 4 for more details of our path analysis and Fig. 2 for a visual description of our significant and non-significant hypotheses in our model.

Hypothesis Testing

Overall, we found support for hypotheses 1, 2 and 4 in both of our models. Despite finding a positive relationship between MACH and our dependent variables in both models, we did not have support for hypothesis 3 due to the non-significance of the p-value. Please see Table 5 for more detail.

Discussion

Like opening Pandora's box, our study unleashes the malevolent aspects of personality, allowing them to be incorporated into the TAM-related literature. Given that the dark traits of personality impact technology acceptance, we must now explore the deeper meaning of their inclusion in this context. We do not recommend using torches and pitchforks when seeking out monsters to eliminate the threat of their existence as frightened villagers in an old black-and-white movie might, but instead suggest shining an inward-focused scholarly light to understand how the monstrous aspects of our personalities play into our technology acceptance. Overall, we argue that our findings demonstrate how, on a macro level, the three dark elements—psychopathy,

Direct effects (paths)	β	SD	t-value	<i>p</i> -value	CI 2.5%	CI 97.5%	Raw RW	RW % of R^2
H1: PEOU	0.572	0.046	13.993	0.000	0.557	0.739	0.331	69.2
TAM	NA							
H2: Psychopa- thy—>PU	-0.198	0.064	-3.590	0.000	-0.358	-0.105	0.020	4.2
→ TAM	-0.288	0.066	-4.466	0.000	-0.417	-0.158	0.029	12.9
H3: Mach—>PU	0.031	0.069	0.518	0.605	-0.105	0.171	0.008	1.6
→ TAM	0.115	0.071	1.614	0.107	-0.146	0.254	0.013	5.8
H4: Narcissism	0.145	0.045	3.097	0.002	0.051	0.226	0.022	4.6
→ TAM	0.118	0.046	2.547	0.011	0.027	0.209	0.020	9.2
Constant (PU)	1.979	0.661	2.992	0.003	0.678	3.280		
Constant (TAM)	5.320	0.641	8.302	0.000	4.060	6.579		
Controls								
Age—>PU	-0.140	0.006	-3.193	0.002	-0.029	-0.007	0.043	8.9
→ TAM	-0.035	0.006	-6.345	0.000	-0.046	-0.024	0.087	39.1
Gender—>PU	-0.005	0.108	-0.132	0.853	-0.226	0.198	0.001	0.3
→ TAM	-0.269	0.111	-2.435	0.025	-0.487	-0.052	0.007	3.2
Org Tenure—>PU	0.136	0.005	3.383	0.000	0.007	0.025	0.016	3.3
→ TAM	0.011	0.005	2.299	0.022	0.002	0.021	0.008	3.7
Job satisfac- tion—> PU	0.051	0.095	0.874	0.382	-0.104	0.271	0.012	2.6
→ TAM	0.315	0.098	3.228	0.011	0.027	0.507	0.035	15.8
Change uncer- tain—>PU	0.149	0.043	3.194	0.002	0.053	0.224	0.017	3.6
→ TAM	0.029	0.045	0.637	0.524	-0.060	0.117	0.004	1.7
LMX—>PU	-0.073	0.074	-1.405	0.161	-0.250	0.042	0.004	0.9
→ TAM	0.007	0.078	0.091	0.928	-0.146	0.116	0.010	4.7
Turnover intention	0.010	0.058	0.186	0.895	-0.104	0.126	0.004	0.8
→ TAM	0.096	0.060	1.596	0.111	-0.022	0.215	0.009	3.9
	\mathbb{R}^2			F	Sig			
Perceived ease of use (PU)	0.478			32.025	0.000			
ТАМ	0.332			10.941	0.000			

Table 4 Path analysis

Machiavellianism, and narcissism—connect to technology acceptance in a straightforward, black-and-white way. However, exploring the micro levels of each of these dark traits allows one to observe nuances of color in how each subelement of personality traits affects technology acceptance. In the following subsections, we dissect the DT elements and connect them to the existing literature to better understand our findings.

Narcissism

Despite our significant finding that narcissism positively impacts PU of new technology, our model addresses only a part of the process by which narcissism ultimately



Fig. 2 Supported and unsupported hypotheses for conceptual model

influences technology acceptance. Considering narcissism as a single construct appears by far to be the most common approach taken in the literature (Jakobwitz & Egan, 2006; Kaufman et al., 2019; Miller et al., 2017, 2021; O'Boyle et al., 2012; Paulhus & Williams, 2002), and there is a clear reason why most scholars use narcissism as a single variable in their studies. Often, narcissism as a single variable within the DT is studied to determine its effects on other variables in an effort to understand whether narcissism (in conjunction with psychopathy and Machiavellianism) plays a role in the proposed model without needlessly exploring the finer nuances of narcissism if it is found to be nonsignificant in the initial studies (Miller et al., 2021). Considering our significant findings, we must now break narcissism down further.

In their recent meta-analysis, Miller et al. (2021) presented hierarchical breakdowns of narcissism, including one to three factors for understanding how the presentation of the personality trait varies among individuals. The one-factor model measures narcissism as a single construct in this study. In the two-factor model, narcissism is segmented into

Hypotheses	Supported
Hypothesis 1: High PEOU for a potential technology will positively impact PU for the same technology	Yes
Hypothesis 2: Higher levels of self-reported psychopathy will negatively affect perceptions of PU as a precursor to the acceptance of a new technology	Yes
Hypothesis 3: Higher levels of Machiavellianism will negatively affect perceptions of PU as a precursor to the acceptance of a new technology	No
Hypothesis 4: Higher levels of narcissism will positively affect perceptions of PU as a precursor to the acceptance of a new technology	Yes

 Table 5
 Results of proposed hypotheses

grandiose narcissism and vulnerable narcissism, while the three-factor model contains three elements: agentic extraversion, antagonism, and narcissistic neuroticism.

The image of a grandiose narcissist fits the popular lexicon, in which this type of narcissism embodies an extroversive and overt expression of superiority and entitlement (Besser & Priel, 2010; Miller & Maples, 2011; Miller et al., 2011). Though some scholars have argued that this trait has a subclinical presentation (Miller & Maples, 2011), the egomaniacal nature of grandiose narcissists creates a belief that they are entitled to special treatment because they are innately better than others (Besser & Priel, 2010; Miller & Maples, 2011; Miller et al., 2011). Whereas narcissism as a single construct might be defined simply as demonstrating an openness to experience (Paulhus & Williams, 2002; Vernon, 2008), a grandiose narcissist would be open to an experience only if it was their idea. Therefore, our hypothesized relationship with PU would not likely occur if one categorized the data collected based on grandiose narcissism and directly tested for this condition. Additionally, grandiose narcissism presents with low neuroticism (Besser & Priel, 2010; Miller & Maples, 2011; Miller et al., 2011). Studies on the BFI and TAM have found that neuroticism negatively affects PU and PEOU (Barnett et al., 2015; Punnoose, 2012), and grandiose narcissism is associated with only a mild trait presentation; thus, one would expect conflicting connections for this condition with TAM.

In dramatic contrast, vulnerable narcissism manifests as introversive self-absorbedness and acute extreme sensitivity to any level of criticism, in tandem with high neuroticism (Besser & Priel, 2010; Miller & Maples, 2011; Miller et al., 2011). Although vulnerable narcissists do not overtly express their feelings of superiority over others, they "are just as convinced that they're better than others as any other narcissist, but they fear criticism so viscerally that they shy away from, and even seem panicked by, people and attention" (Malkin, 2015, p. 34). The high level of neuroticism associated with this version of narcissism is likely negatively associated with PU and PEOU, per the studies on BFI and TAM (Barnett et al., 2015; Punnoose, 2012).

In the three-factor model of narcissism, the constructs of grandiose and vulnerable narcissism are further broken down: Grandiose narcissism is split into agentic and antagonistic narcissism, and vulnerable narcissism is linked to neurotic narcissism (Back et al., 2013; Crowe et al., 2019; Krizan & Herlache, 2018). Agentic narcissism manifests as the traits of assertiveness, self-promotion, striving for social attention, and desire for admiration (Hater et al., 2021). We argue that owing to the individual's desire for admiration and seeking for social situations, this aspect of narcissism will likely lead to better technology acceptance because the narcissist will push through perceived obstacles to accept the new technology and self-publicize themselves as adopting the latest technology when their peers struggle with it. Conversely, antagonistic narcissism is associated with traits such as frequent devaluation and exploitation of others, striving for supremacy, and arrogance (Hater et al., 2021). It will likely result in a negative relationship with TAM elements because the narcissist will probably manipulate opportunities so as to circumvent assimilating aspects of technology adoption, such as by having others do the tasks a new technology would be used for or finding ways to avoid the use of new technology altogether. Notably, the literature associated with Machiavellianism appears to at least partly parallel this line of thinking regarding antagonistic narcissism. Therefore, one can rationally expect to see potential correlations and relative fuzziness when exploring narcissism and Machiavellianism concurrently in modeling. When considering neurotic narcissism, the linked traits of insecurity, shame, and hypersensitivity to and avoidance of criticism likely share the same relationships and negative effects on TAM found in conjunction with vulnerable narcissism.

Psychopathy

We argue that despite our significant finding that psychopathy negatively impacts PU of new technology, this relationship provides only part of the larger picture of how the vast construct of psychopathy ultimately plays into technology acceptance. Just as with narcissism, the majority of scholars approach psychopathy as a single construct in conjunction with the DT to determine if a significant relationship exists before exploring the individual aspects of the trait in detail (Jakobwitz & Egan, 2006; Kaufman et al., 2019; Miller et al., 2017, 2021; O'Boyle et al., 2012; Paulhus & Williams, 2002). Scholars dissect general psychopathy via the triarchic model (Patrick et al., 2009) into the three archetypes: disinhibition, meanness, and boldness.

When examining boldness, scholars often associate decreased fear of social situations with higher stress tolerance levels, along with exhibiting high self-confidence and social assertiveness (Patrick et al., 2009; Skeem et al., 2011). In the contemporary work environment literature, boldness typically appears as a negative construct (Carre et al., 2018; Neo et al., 2018). However, this trait is perceived positively in some types of roles, such as leadership (Lilienfeld et al., 2012), and can support adaptive behaviors that lead toward stronger organizational citizenship (Preston et al., 2021). When comparing Venkatesh's (2000) finding that anxiety related to computers can impact one's PEOU and PU with the higher levels of stress-tolerance demonstrated by individuals who exhibit bold psychopathic traits (Patrick et al., 2009; Skeem et al., 2011), one could logically deduce that higher levels of bold psychopathy would have a positive relationship with technology acceptance—specifically, that individuals with this trait would possess the characteristics needed to overcome the anxiety that might otherwise limit PU.

Disinhibition is associated with low impulse control via cognitive difficulties in planning and the need for immediate gratification (Patrick et al., 2009; Robertson et al., 2002). Like boldness, disinhibition also trends to be viewed negatively in the literature in terms of its impact on the workplace (Carre et al., 2018; Neo et al., 2018; Reio & Sanders-Reio, 2006). Most notably, Reio and Sanders-Reio (2006) found that disinhibition hinders workplace learning, diminishes office socialization, and lowers job performance. Considering that the acceptance of a new technology ultimately comes from learning how to use the technology, we propose a logical connection—namely, that the dimension of disinhibition in psychopathy will negatively affect PU because disinhibition decreases workplace learning. Our findings in this study also provide support for this claim.

The meanness component encompasses a lack of empathy, a dislike for forming close attachments to others, overall resistance to elements of authority, and use of exploitive means to accomplish tasks (Patrick et al., 2009; Skeem et al., 2011). Scholars contend mean individuals often exploit others so as to obtain power through cruelty (Skeem et al., 2011). Many of these individuals are arrogant, aggressively competitive, prone to verbal abuse/bullying, defiant, lacking in close personal relationships, and prone to seeking stimulation through their destructiveness (Osumi & Ohira, 2017; Skeem et al., 2011).

Machiavellianism

Though our findings indicate that Machiavellianism does not significantly impact technology acceptance, we argue that further analysis to understand how it impacts technology acceptance is warranted. While we might desire to obtain a larger sample to retest the relationships, gathering more data would not likely yield a different result (Wood et al., 2014). Instead, we argue that the nuances of Machiavellianism probably would deliver variable results if analyzed in this context. Therefore, in this subsection, we explore the multi-factor elements of Machiavellianism to obtain a deeper understanding of how each likely impacts TAM elements.

Unlike for narcissism and psychopathy, traditional scholars do not segment Machiavellianism into categorically and overtly descriptive named constructs, but instead distinguish between high (High Mach) and low (Low Mach) levels of this construct (Fehr & Samsom, 2013; Rauthmann, 2013). Individuals considered to be High Machs exhibit extremes of manipulative behavior to accomplish self-serving goals and produce adverse workplace outcomes and counterproductive workplace behaviors such as deceit, coercion, cheating, and abusive supervision (Mitchell et al., 2018; Shu et al., 2011). Conversely, Low Machs express less desire for playing the role of puppet master in search of power, money, and status (Mitchell et al., 2018; Shu et al., 2011). In our study, we did not use an adequate measure that would enables us to determine if our sample was composed of Low or High Machs; thus, we cannot state with any certainty how the differences between these groups affected technology acceptance. As per our literature review and the preceding discussion of antagonistic narcissism, we expect this trait's manipulative nature to affect TAM elements negatively in (future) studies in which the construct is evaluated separately.

The Machiavellian Personality Scale (MPS; Dahling et al., 2009) distinguishes between four associated traits (distrust of others, desire for status, desire for control, and amoral manipulation) commonly found in Machiavellianism, allowing for a more nuanced understanding of the overall trait (Dahling et al., 2009; Grijalva & Newman, 2015; Kiazad et al., 2010). These associated traits likely impact technology acceptance differently than Machiavellianism as a single construct does. Most notably, the desire for status and the desire for control could potentially motivate an individual to circumvent obstacles to technology acceptance, resulting in a positive effect on PU; in contrast, distrust of others and amoral manipulation would have a negative relationship because the Machiavellian would create obstacles to PU.

It is worthy of note that the collinearity analysis revealed that psychopathy and Machiavellianism were closely correlated. We were not surprised by this result because our literature review also pointed to the stream of scholarship finding that these constructs often appear heavily correlated empirical (Carter et al., 2015; Glenn & Sellbom, 2015; Miller et al., 2017; Vize et al., 2018). As described in detail above for each of the dark traits, we argue that parsing out the constructs with more robust measures that include more factors and sub-traits will help eliminate multi-collinearity between analysis of the constructs.

Overall, our significant findings crack open the door, by suggesting that dark personality traits may contribute to technology acceptance. However, as our discussion has clarified, subtraits associated with the DT would likely introduce variance into our significant findings and require further study.

Trust Relating to Technology Acceptance and Dark Traits

Evaluating trust is an important aspect of technology acceptance that must be considered in conjunction with this study, as it can influence users' perceptions of the technology's reliability and usefulness. The works of Cenfetelli have been particularly influential in highlighting the role of trust in technology acceptance, and in providing a framework for understanding how trust influences users' attitudes and behaviors towards technology. Cenfetelli's research has shown that trust is a key factor in technology acceptance, and that it can impact users' willingness to use and recommend technology (Cenfetelli, 2004). According to Cenfetelli, trust is built through a combination of factors, including perceived competence, perceived integrity, and perceived benevolence. When users perceive a technology as competent, trustworthy, and beneficial, they are more likely to accept and adopt it (Cenfetelli & Bassellier, 2009). Other researchers have also emphasized the importance of trust in technology acceptance. For example, a study by Gefen et al. (2003) found that trust was a significant predictor of online purchase intentions. Similarly, a study by Kim et al. (2008) found that trust was a key factor in the adoption of mobile banking services. Furthermore, Cenfetelli's work has been cited in various studies that highlight the importance of trust in different contexts of technology adoption.

When considering how psychopathy and narcissism impact trust perceptions in association with the acceptance and adoption of general technology, we will now discuss how these traits likely impact perceptions. Trust is a crucial factor in the adoption and acceptance of technology, as it affects the perceived risks and benefits of technology use. Research has shown that psychopathy is negatively associated with trust in technology. A study by Holtz and Appel (2011) found that individuals with high levels of psychopathy were less likely to trust mobile banking technology. This lack of trust was attributed to the fact that psychopaths are less likely to consider the consequences of their actions, leading to a perception that the technology may be used for unethical purposes. Another study by Bélanger and Crossler (2011) found that individuals with high levels of psychopathy were less likely to trust e-commerce websites. This lack of trust was attributed to a perception that the website may be fraudulent or used for malicious purposes.

However, it is important to note that not all studies have found a negative relationship between psychopathy/narcissism and trust in technology. For example, a study by Hsu and Lu (2007) found that individuals with high levels of psychopathy were more likely to trust and use mobile commerce services. This trust was attributed to the fact that psychopaths are more likely to take risks, which may lead to a perception that the technology is innovative and exciting. As such, narcissism may lead to a lack of trust in technology, which may in turn impact adoption.

Considerations of Dark Traits on Technology Adoption

Individuals with dark personality traits, such as narcissism, may perceive technology as useful due to their grandiose self-image and desire for admiration. However, these traits may also hinder technology adoption due to the personality characteristics associated with them. The personality traits may make the individual less willing to seek help, less willing to follow rules, and less willing to cooperate (Tangney et al., 2007), making technology adoption more challenging. Our study has shown that narcissism is positively related to perceived usefulness of technology, indicating that individuals with this trait may see technology as a means of achieving their grandiose goals (Baumeister & Bushman, 2014). However, this positive relationship is not always reflected in actual technology adoption. This is likely due to the fact that narcissism is associated with a sense of entitlement, which may make it difficult for these individuals to follow rules (Tangney et al., 2007) and learn new skills required for technology adoption.

In conclusion, although dark personality traits such as narcissism may lead individuals to perceive technology as useful, their characteristics may hinder the ultimate adoption of technology. The entitlement, lack of empathy, and disregard for rules associated with these traits may make technology adoption more challenging for individuals with these personalities. Therefore, it is important to consider the role of dark personality traits when examining technology adoption and to design technology interventions that take into account the specific characteristics of these individuals.

Limitations and Future Research

Like any study, our research has some limitations that future researchers can exploit namely, by using a part of the Machiavellian aspect of their personality to understand and drive theory in this topic. Like most researchers evaluating the DT, we utilized general constructs obtained from the Dirty Dozen questionnaire (Jakobwitz & Egan, 2006; Jonason & Webster, 2010; Kaufman et al., 2019; Miller et al., 2017; O'Boyle et al., 2012; Paulhus & Williams, 2002). This measure identifies overall relationships of three variables—psychopathy, Machiavellianism, and narcissism-with TAM elements; however, the nuances of these general variables do not adequately explain the variance in each personality trait's effects on the aspects of TAM. Future researchers should evaluate psychopathy's effects on TAM by utilizing Levenson et al.'s (1995) questionnaire to measure primary and secondary psychopathy and the Psychopathic Personality Inventory-Revised (PPI-R; Lilienfeld et al., 2005) to measure the other factors associated with psychopathy. In the same vein, researchers should consider gathering data on the multi-factor nature of Machiavellianism's effects on TAM elements by administering the MACH-IV (Christie & Geis, 1970). However, scholars should use caution if they choose to utilize the MACH-V questionnaire (Christie & Geis, 1970), as Shea and Beatty (1983) found the measures to be negligible in effect for hypothesis testing. Researchers can also apply the Machiavellian Personality Scale (MPS; Dahling et al., 2009) to gain more nuanced perspectives on how each factor of Machiavellianism affects TAM elements. Additionally, scholars should evaluate the multifaceted aspects of narcissism on TAM elements with the Five-Factor Narcissism Inventory (FFNI; Glover et al., 2012).

Our measurement tool was modified to not test a specific technology in favor of a general technology in order to more accurately ascertain the antecedents of technology acceptance. However, now that there is support that a general technology can be perceived easy to use, future research should consider testing specific specific technologies to determine if narcissism influences universally. Particularly, we suggest technologies that do not give immediate feedback or may not directly appear useful (i.e. communication, gaming, and social media technologies.)

Outside of the dark traits, our discussion also suggests that future studies should include trust as a variable when exploring technology acceptance and adoption. Even though there appears to be no studies combining trust and data traits in this vein, we argue that future studies should study direct, indirect, moderating effects to determine how trust impacts the relationships found in our study.

In our investigation, we studied the general population and the general concept of accepting a technology. Future research should consider studying specific industries/job types and technologies given that there is a vast difference between, for example, getting a new feature on a smartphone and implementing a customer relationship management (CRM) system.

Another limitation of our study is the highly skewed sample in regards to race and age. Owing to the significant p values for age and gender in our controls, the sample limits the generalization of our findings. Our findings may only be salient in people over the age of 30 and those who are white. Therefore, future researchers should consider sampling both younger workers and focus on races other than white to determine if our findings can appropriately translate to these important demographics. With the heavily skewed demographic of age being between the age of 56 to 70 years old (245 participants representing 61.869% of the sample), our findings can keenly provide a theoretical understanding of the "greying workforce" in contemporary settings. According to United States Department of Labor. (n.d.), people over the age of 55 make up over 25% of the total workforce and this percentage is raising because people in the United States are working beyond retirement to meet the cost of living. Our findings provide evidence that older workers are impacted by their dark personality traits when considering a new technology. The literature already supports that age (Chen & Chan, 2011, 2014; Chung et al., 2010; Tarhini et al., 2014) and gender (Gefen & Straub, 1997; Tarhini et al., 2014) impact technology acceptance. Our findings indicate that there exists relationships between the above variables for this demographic group. Considering that our study is at heart an exploratory study, we were not able to ascertain or evaluate the "why" behind findings. Future studies need to explore how the "greying workforce" experiences our hypothesized relationship with qualitative richness to truly understand the nuances required for honoring this demographic.

Managerial Implications

Our findings have several implications for managers. Specifically, we can foresee several costly issues arising when organizations undergo significant software and hardware upgrades (Venkatesh & Davis, 1996). Given that narcissistic leaders often drive organizational change (Gerstner et al., 2013) and that early adopters of technology often exhibit the trait of narcissism (Baumgarten, 1975; Gerstner et al., 2013), managers can use employees with narcissistic traits as change agents when implementing new technological platforms. To identify these individuals, managers should seek out people who overtly display socialclimbing behaviors in the organization. Those individuals are likely to manifest traits such as assertiveness, self-promotion, striving for social attention, and desire for admiration (Hater et al., 2021) and are likely to apply these traits to push through perceived obstacles to not only accept a new technology but also self-publicize themselves as adopting the new technology when their peers are struggling. We argue that other employees will, in turn, be motivated to embrace the new technology by the successes of these narcissistic change agents in the organization. Thus, the overall acceptance of a newly implemented technology by other employees will likely come from their striving to achieve similar mastery of the technology that the leader-narcissist displays.

However, managers should employ caution when seeking out narcissists to be change agents. Narcissism in leadership presents both positive and negative elements that occur concurrently and result in a curvilinear total effect size (Grijalva et al., 2015; Higgs, 2009; Paunonen et al., 2006; Rosenthal & Pittinsky, 2006). Higgs (2009) has argued that the literature has primarily associated the positive elements with leadership. Such positive elements include the emergence of leadership through extroversion (Grijalva et al., 2015) and high levels of charisma and grand vision that are vital to effective leadership (Rosenthal & Pittinsky, 2006). Conversely, negative elements include followers' malicious and benign envy and supervisor-targeted counterproductive work behaviors (Braun et al., 2018).

Recruiting a narcissistic change agent could backfire on management if the narcissist decides to subvert their newly obtained status and influence so as to damage the relationships between other employees and management. Additionally, the followers of a narcissistic change agent could display envy, decrease their productivity, and potentially have more difficulty accepting the new technology. Nonetheless, there is potential for utilizing the narcissistic traits of employees to accept new technology even in the face of these potential drawbacks.

Conclusion

Our research explores how the dark trait of narcissism positively affects general technology acceptance. In contrast, psychopathy negatively affects the potential acceptance of a new technology. Though we did not find support for a direct relationship between Machiavellianism and technology acceptance, we suggested ways that future research could account for this dark trait's potentially negative relationship with technology acceptance. Our results indicate that managers should consider exploiting elements of dark personality traits (especially narcissism) when implementing new technology. Beyond the fundamental relationships, we suggested future research dig deeper, thereby enhancing our understanding of how dark personality traits impact technology acceptance.

Declarations

Conflict of Interest We have no conflict of interest to disclose.

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